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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,272	11/14/2001	David A. Gough	6627-PA1034	6363
27111	7590	01/15/2004	EXAMINER	
BROWN, MARTIN, HALLER & MCCLAIN LLP 1660 UNION STREET SAN DIEGO, CA 92101-2926			BORIN, MICHAEL L	
			ART UNIT	PAPER NUMBER
			1631	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/993,272	<b>Applicant(s)</b> GOUGH ET AL.	
	<b>Examiner</b> Michael Borin	<b>Art Unit</b> 1631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Status of Claims***

1. Response to restriction requirement filed 10/28/2003 is acknowledged. Applicant elected, without traverse, Group I, claims 1-6,8. Claim 7 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected group. Cancellation of claim 7 is requested.

### ***Information Disclosure Statement***

2. Applicants' Information Disclosure Statement filed 06/24/2003 has been received and entered into the application. Accordingly, as reflected by the attached completed copies of forms PTO-1449, the cited references have been considered.

### ***Claim Rejections - 35 USC § 112, second paragraph.***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-6,8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, and claims dependent therefrom, are drawn to predicting interactions between unknown molecules based, presumably, on the known interactions between

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molecules in the trainable set. The claims are vague and indefinite as there are no method steps addressing determination of interaction of molecules in the trainable set; all the claims recite is entry of information on structure of molecules in the trainable set. Thus, it is not clear how the interaction for unknown molecules can be determined in the absence of information of interaction of known molecules.

Further, the term "trainable" in regard to the system addressed in claims 1,8 is indefinite as it is not clear in which regard the system is "trainable" (is it based on functional or structural characteristics of compounds, on interactions between compounds, etc), and there are no method steps specifying the "training" of the system.

***Claim Rejections - 35 USC § 102 and 103.***

4. Claims 1-8 are rejected under 35 U.S.C. 102(e) as anticipated by Braunheim (US Patent 6,587,845)

The instant claims are drawn to predicting interactions between molecules with unknown interactions based on analogy to biomolecules in the trainable set comprising biomol cules with known interactions.

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Braunheim teaches a neural network which is "trained" with the bioactivity of known compounds and then is used to predict the bioactivity of unknown compounds. The predictive value of the system is gained through the use of "training" process after which the system is able to predict chemical characteristics, such as binding, for unknown molecules. The unknown molecules can be bioactive agents such as proteins, nucleic acids, etc. See abstract, col. 2, second paragraph, claims 1,21,24.

It is the Examiners position that all the elements of Applicant's invention with respect to the specified claims are instantly disclosed or fully envisioned by the teaching of the reference cited.

5. Claims 1-6,8 are rejected under 35 U.S.C. 103(a) as obvious over admitted prior art.

The instant claims are drawn to predicting interactions between molecules with unknown interactions based on analogy to biomolecules in the trainable set comprising biomolecules with known interactions.

There is a number of known databases of known interactions between biomolecules containing both structural and functional information on the component compounds. Some of the known databases of such kind are summarized in Table 1 on pages 11,12 of specification (and are cited in publications submitted in the

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Information Disclosure Statement). It would be *prima facie* obvious to one skilled in the art at the time the invention was made to be motivated to use said databases to determine homology or similarity between known components of database and unknown compounds and further to predict functional characteristics of the unknown compounds based on structural similarity and knowledge of functional characteristics of the known compounds. Note that the term "trainable" used in the claims is not limiting as it addresses intended use of the system into which structural information of the known compounds is entered , rather than any real use of the system.

***Conclusion.***

6. No claims are allowed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Borin whose telephone number is (703) 305-4506. Dr. Borin can normally be reached between the hours of 8:30 A.M. to 5:00 P.M. EST Monday to Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Woodward, can be reached on (703) 308-4028. The fax telephon number for this group is (703) 305-3014.

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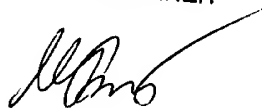
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Any inquiry of a general nature or relating the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

January 5, 2004

mlb

MICHAEL BORIN, PH.D  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'Michael Borin', with a long, sweeping horizontal line extending to the right.